REMARKS

This Application has been carefully reviewed in light of the Final Office Action mailed July 22, 2010. In the Final Office Action, all pending Claims 10, 12-17, 19-23, and 25-29 were rejected. Claims 1-9, 11, 18, and 24 were previously cancelled. Applicants respectfully request reconsideration and favorable action in this case.

Rejections under 35 U.S.C. §103

Claims 10, 12-17, 19-23, and 25-29 were rejected under 35 U.S.C. §103(a) as being unpatentable over *Amann* (U.S. 5,345,916) in view of *Oono* (U.S. 6,889,666).

In order to establish a prima facie case of obviousness, the references cited by the Examiner must disclose all claimed limitations. *In re Royka*, 490 F.2d 981, 180 U.S.P.Q. 580 (C.C.P.A. 1974). Even if each limitation is disclosed in a combination of references, however, a claim composed of several elements is not proved obvious merely by demonstrating that each of its elements was, independently, known in the prior art. *KSR Int'l. Co. v. Teleflex Inc.*, 127 S.Ct. 1727, 1741 (2007). Rather, the Examiner must identify an apparent reason to combine the known elements in the fashion claimed. *Id.* "Rejections on obviousness grounds cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness." *Id.*, citing *In re Kahn*, 441 F.3d 977, 988 (Fed. Cir. 2006). Finally, the reason must be free of the distortion caused by hindsight bias and may not rely on ex post reasoning. *KSR*, 127 S.Ct. at 1742. In addition, evidence that such a combination was uniquely challenging or difficult tends to show that a claim was not obvious. *Leapfrog Enterprises, Inc. v. Fisher-Price, Inc. and Mattel, Inc.*, 485 F.3d 1157, 1162 (Fed. Cir. 2007), citing *KSR*, 127 S.Ct. at 1741.

Applicants respectfully traverse and submit that the proposed combination or *Amann* with *Oono,* even if proper (which Applicants do not concede), does not render the claimed embodiment of the invention obvious. In particular, *Amann* does not teach anything remotely similar to the various limitations of Applicants' claims for which it has been cited by the Examiner, as discussed below.

For example, Claim 10 recites:

> 10. A method for controlling a fuel pressure in a fuel supply device of an internal combustion engine having a regulator valve, the method comprising the steps of:
>
> determining a desired fuel pressure value;
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> determining an actual fuel pressure value by a fuel pressure sensor;
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> calculating an actual fuel pressure gradient from at least two consecutive actual fuel pressure values from said fuel pressure sensor;
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> comparing the calculated actual fuel pressure gradient to a specified threshold gradient value; and
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> if the calculated actual fuel pressure gradient is above the specified threshold gradient value then determining an actuating signal as a function of the desired fuel pressure value and the calculated actual fuel pressure gradient; and
>
> controlling said regulator valve with said actuating signal.

The Examiner alleges that *Amann* teaches all of these limitations "except positively disclosing the fuel pressure is sensed by the fuel sensor," which feature the Examiner alleges is taught by *Oono*. Applicants respectfully submit that *Amann* does not teach ***any*** of these limitations for which it has been cited.

For example, *Amann* does not teach "calculating an actual fuel pressure gradient from at least two consecutive actual fuel pressure values from said fuel pressure sensor." With respect to this limitation, the Examiner argues "Figure 6 [of Amann] shows pumping rate measured in mm3/degree and fuel pressure pulses." (Office Action, page 3). Applicants respectfully cannot understand how Figure 6 possibly shows ***calculating*** any gradient at all, much calculating a ***fuel pressure gradient*** from multiple ***fuel pressure values***. Figure 6 shows a **fuel pumping rate** (mm3/degree) as a function of degrees of pumping, along with five sample "**pulse wave form curves** W-1 through W-5" that show the **injector needle lift**. (col. 7, lines 1-14). Neither the main graph, nor the five "pulse wave form curves" shown in Figure 6 indicate any ***pressure*** values or ***pressure*** gradients at all. Pressure is simply not shown in the graphs of Figure 6. Further, Figure 6 does not show ***calculating*** a pressure gradient, and certainly not ***calculating*** an actual pressure gradient based on multiple ***actual fuel pressure values***. In fact, the Examiner acknowledges that *Amann* does not determine

actual fuel pressure values, but alleges that *Oono* does. Thus, it is not clear how Figure 6 of *Amann* can possibly teach ***calculating*** an ***actual pressure gradient*** based on multiple ***actual fuel pressure values***.

The Examiner also adds, presumably with respect to this limitation: "Note: Applicant has defined 'gradient' as a change in pressure values as discussed in Paragraph 24. As such, Amann et al. clearly monitors the flow rates as shown in Figures 5 and 6 and discussed on Col. 5, Lines 15-20." (Office Action, pages 3-4). Applicants do not understand how the argument that Amann "clearly monitors the ***flow rates***" shows that *Amann* teaches ***calculating*** any gradient, much less calculating an ***actual pressure gradient*** based on multiple ***actual fuel pressure values***. Monitoring flow rates and calculating a pressure gradient obviously cannot be equated.

If the Examiner wishes to maintain his position, Applicants respectfully request that the Examiner indicate which portion of Figure 6 teaches **calculating** a gradient, and which portion of Figure 6 shows a ***pressure*** gradient based on ***actual pressure values***. Applicants submit that one of ordinary skill in the art would certainly not view Figure 6 as teaching "calculating an actual fuel pressure gradient from at least two consecutive actual fuel pressure values from said fuel pressure sensor."

As another example, *Amann* does not teach "comparing the calculated actual fuel pressure gradient to a specified threshold gradient value," as recited in Claim 10. With respect to this limitation, the Examiner's only reference is simply "See Figure 5A and 5B." (Office Action, page 3). Applicants respectfully cannot understand how Figure 5A and 5B possibly show ***comparing a calculated gradient with a threshold gradient value***, much less comparing a calculated actual fuel pressure gradient (which *Amann* does not teach, as discussed above) with a specified threshold gradient value. Like Figure 6 discussed above, Figures 5A and 5B clearly do not show a ***pressure gradient***. Figure 5A is a plot of fuel flow quantity versus cam angle, and Figure 5B is a plot of pumping rate versus cam angle. Neither graph indicates ***pressure*** or a ***pressure*** gradient. Moreover, neither plot indicates comparing a calculated gradient with a threshold gradient. There is nothing in either graph that could be equated with a **threshold gradient**. Further, there is nothing in either graph that shows

comparing a gradient with anything, much less a comparing a calculated gradient with a threshold gradient.

If the Examiner wishes to maintain his position, Applicants respectfully request that the Examiner indicate exactly which portion of Figures 5A and 5B shows a ***pressure gradient***, which portion of Figures 5A and 5B shows a ***threshold gradient***, and which portion of Figures 5A and 5B shows a ***comparison*** of a gradient with a threshold gradient. Applicants respectfully submit that the subject matter of Figures 5A and 5B has nothing to do with these limitations of Applicants' claims.

As another example, *Amann* does not teach "if the calculated actual fuel pressure gradient is above the specified threshold gradient value then determining an actuating signal as a function of the desired fuel pressure value and the calculated actual fuel pressure gradient," as recited in Claim 10. The Examiner alleges that this limitation is taught by Col. 4, Lines 30-45 of *Amann* (Office Action, page 3). Applicants respectfully cannot understand how this passage supposedly teaches this limitation. Col. 4, Lines 30-45 of *Amann* teaches:

> To provide for improved tailoring of each injection event for improving engine firing, this invention controls the operation (energization and de-energization) of solenoid 58 through microprocessor 80. By energizing the solenoid 58 at different points or angles along the pumping ramp of the cam as determined by engine operating conditions, the start of injection is determined and detected by the microprocessor. **The microprocessor knowing the cam angle for start of injection and the quantity of fuel to be injected calculates the angle at which fuel injection is to be terminated. The microprocessor accordingly de-energizes the solenoid after a predetermined angle is reached so that delivery of the desired fuel quantity is injected**.

The only thing that could possibly be considered as a determination of an actuating signal as a function of other parameter(s) is bolded above. Specifically, an actuating signal for controlling a cam angle (by controlling a solenoid) is determined based on (a) the cam angle at the start of injection and (b) the quantity of fuel to be injected. Applicants do not understand how this can possibly be equated with determining an actuating signal based on (a) a desired fuel pressure value and (b) a calculated actual fuel pressure gradient. Determining a signal based on a **cam angle** and a **desired fuel injection quantity** is

obviously not the same, or even remotely similar, to determining a signal based on a **desired fuel pressure value** and a **calculated actual fuel pressure gradient**. Further, the cited passage of *Amann* does not teaches that the solenoid-actuating signal is determined "if [a] calculated actual fuel pressure gradient is above [a] specified threshold gradient value," as recited in Claim 10. If the Examiner wishes to maintain his position, Applicants respectfully request that the Examiner indicate exactly where the cited passage mentions a **desired fuel pressure value**, or a **calculated actual fuel pressure gradient**, or determining an actuating signal based on both of these particular inputs, or determining such an actuating signal if a calculated actual fuel pressure gradient is above a specified threshold gradient value." In fact, the cited portion of *Amann* (as well as the remainder of *Amann*) does not teach anything similar to any of these limitations.

Thus, for at least the reasons set forth above, Applicants submit that independent Claim 10 is allowable over *Amann* and *Oono*. Accordingly, Applicants respectfully request allowance of Claim 10, as well as all dependent claims. In addition, for analogous reasons, Applicants respectfully request allowance of independent Claims 12 and 25, as well as all dependent claims.

CONCLUSION

Applicants have made an earnest effort to place this case in condition for allowance in light of the remarks set forth above. Applicants respectfully request reconsideration of the pending claims.

Applicants believe there are no fees due at this time. However, the Commissioner is hereby authorized to charge any fees necessary or credit any overpayment to Deposit Account No. 50-4871 of King & Spalding L.L.P.

If there are any matters concerning this Application that may be cleared up in a telephone conversation, please contact Applicants' attorney at 512-457-2030.

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